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Research Article

A COMPARATIVE STUDY TO EVALUATE THE EFFECT OF *JALAUKAVACHARANA* AND *SHALMALI KANTAKA LEPA* IN THE MANAGEMENT OF *MUKHADUSHIKA* W.S.R. TO ACNE VULGARIS

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ABSTRACT

Mukhadushika (acne vulgaris) is a common skin condition in adolescents, caused by inflammation, excess sebum and bacterial growth. In Ayurveda, *Mukhadushika* is linked to imbalances in *Vata, Kapha* and *Rakta doshas*. It can cause significant psychological distress, affecting self-esteem and social interactions. While modern treatments focus on topical and systemic medications, Ayurvedic therapies like *Jalaukavacharana* (leech therapy) and *Shalmali Kantaka Lepa* offer alternative approaches for managing the condition. **Objective:** A comparative study to evaluate the effect of *Jalaukavacharana* and *Shalmali Kantaka Lepa* in the management of *Mukhadushika* w.s.r. Acne Vulgaris. **Methodology:** A randomized clinical trial was conducted at RGGPG Ayurvedic College, Paprola, with 40 *Mukhadushika* (acne) patients divided into two groups. Group A received *Jalaukavacharana* with *Shalmali Kantak Lepa*, while Group B treated with *Lepa*. **Result:** The study showed that the results in the *Jalaukavacharana* along with *Lepa* group were significantly better than in the *Lepa*-only group, highlighting the beneficial synergistic effects of combining *Jalaukavacharana* with *Shalmali Kantak Lepa* alone. **Conclusion:** The study shows that combining *Jalaukavacharana* with *Shalmali Kantak Lepa* offers superior therapeutic benefits for treating chronic *Mukhadushika*. This integrative approach enhances treatment efficacy, providing a promising alternative to conventional acne management.

INTRODUCTION

People today are highly conscious of both their health and appearance, recognizing that the two are closely intertwined. As a result, health and beauty have become inseparable, like two sides of the same coin. However, industrialization, environmental pollution and the pressures of modern life have taken a toll on both physical and mental health. Factors such as stress, anxiety, anger and depression have become increasingly common, further exacerbating the negative impact on overall well-being. These challenges contribute to a range of skin issues, including acne, eczema and premature aging. The combination of unhealthy lifestyle choices, poor diet and exposure to environmental pollutants has made it more difficult for many to maintain healthy, radiant skin. Addressing these underlying causes is essential for achieving both physical health and beauty. *Mukhadushika*, also known as *Yuvanapidika*, is a skin condition that was first described by Acharya Sushruta as a *Kshudra Roga*[1] and by Acharya Charaka as a *Raktapradoshaja Vikara*[2]. This condition is primarily caused by the vitiation of *Vata, Kapha* and *Rakta*[3], which leads to symptoms such as *Ruja, Shotha, Medogarbhatva, Ghana Pidika* and lesions resembling *Salamalikantakaprakhya*[4]. In Ayurveda, the management of *Mukhadushika* involves both *Shodhana* and *Shamana* therapies. Recommended treatments include *Vamana, Virechana, Raktamokshana*[5] as well as external therapies like *Lepa, Upnaha* and Ayurvedic oral medications. Among these, *Raktamokshana*, particularly through *Jalaukavacharana* (leech therapy), is considered highly effective for *Raktapradoshaja Vikara* (blood disorders). *Mukhadushika* can be correlated with acne vulgaris on the basis of sign of

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symptoms in modern medical science. Acne is a chronic inflammatory disease of the pilosebaceous units characterized by seborrhoea, the formation of open and closed comedones, erythematous papules and pustules and in more severe cases nodules, deep pustules and pseudocysts. Often, there will be some degree of scarring.[6] It develops when these follicles become clogged due to the overproduction of sebum, accumulation of dead skin cells and bacterial growth, particularly Cutibacterium acnes. Environmental factors such as pollution, along with hormonal changes and genetic predisposition, can further exacerbate the condition. Acne typically manifests as lesions like papules, pustules, nodules and cysts, primarily occurring on the face, chest and back.[7] While it is not a life-threatening condition, untreated or severe acne can lead to permanent scarring and negatively affect an individual's confidence and self-esteem. Proper skincare, lifestyle modifications and timely treatment are essential to manage acne effectively and reduce the risk of long-term complications.

AIMS AND OBJECTIVES

To compare the efficacy of *Jalaukavacharana* (leech therapy) along with *Shalmali Kantaka Lepa* and *Shalmali Kantaka Lepa* alone in the management of *Mukhadushika* (acne vulgaris).

MATERIAL AND METHODS

Selection of patients: Patients of *Mukhadushika* fulfilling the diagnostic criteria were registered from the OPD/IPD of Rajiv Gandhi Govt. Ayurvedic Hospital, Paprola, Dist. Kangra (H.P.). Total no. of 40 patients were enrolled for this study.

Intervention

Total 40 patients having cardinal symptoms of *Mukhadushika* were selected and randomly divided into two groups. In Group A, patients were treated with *Jalaukavacharana* as a *Shodhana Chikitsa* along with *Shalmali Kantaka Lepa* for local application on affected area, twice in a day. Here milk was used as base. Whereas Group B patients were given only *Shalmali Kantaka Lepa* as local application on affected area, twice in a day.

Duration of trial: 30 days

Follow up: Follow up had been done twice in a month.

Diagnostic Criteria

The diagnostic criteria were based on the signs and symptoms of *Mukhadushika* as described in Ayurvedic texts and the clinical features of acne vulgaris outlined in modern literature, including *Shalmali Kantaka Prakhya Pidika, Ruja* (pain), *Shotha* (inflammation) and *Ghana Yuvanapidika* (nodular acne).

Inclusion Criteria

- Patient between the age group of 16-40yrs.
- Patient presenting with cardinal features like *Shalmali Kantakakara, Toda, Ghana Yuvanapidika*.
- Patient fit for *Raktamokshana*.

Exclusion Criteria

- Patients below age of 16 years and above 40 years of age.
- Patients suffering from diabetes mellitus, hepatitis, immune deficiency syndrome and infectious disease etc.
- Bleeding tendency disorders, anaemic patients and Staphylococcal boils.
- Pregnant and lactating women.

Investigations

- **Haematological:** CBC, BT, CT
- **Biochemistry:** Lipid profile, FBS
- **Serological:** HBsAg, immune status

Criteria for Assessment

The patients were assessed in grading pattern prepared as per the sign and symptoms of the disease.

Signs and Symptoms	Grade	BT	AT
***Srava* (Discharge)**			
No discharge	0		
Discharge in few lesions	1		
Discharge in half of the lesions	2		
All the lesions full of discharge	3		
Pidika			
No *Pidika*	0		
Pidika resembling comedones	1		
Pidika resembling papules	2		
Pidika resembling pustules	3		
Pidika resembling nodules (cyst)	4		

***Shotha* (Inflammation)**			
None	0		
Mild (erythema)	1		
Moderate (erythematous papules)	2		
Severe (widespread erythema and pustules)	3		
***Toda* (Pain)**			
No pain	0		
Mild pain not disturbing normal activity	1		
Occasional pain disturbing normal activity	2		
Continuous pain disturbing normal activity	3		
***Kandu* (Pruritis)**			
No pruritus	0		
Mild pruritus not disturbing normal activity	1		
Occasional pruritus disturbing normal activity	2		
Continuous pruritus disturbing normal activity	3		
***Stabddhata* (Hardness)**			
Absence of hardness; soft lesions	0		
Firmness felt on palpation	1		
Very hard in consistency	2		
***Sparsh Ashayata* (Tenderness)**			
No tenderness	0		
Mild tenderness	1		
Wince of his/her face	2		
Not allow to touch the face	3		
***Snigdhata* (Unctuousness)**			
No *Snigdhata*	0		
Mild *Snigdhata*	1		
Moderate *Snigdhata*	2		
Severe *Snigdhata*	3		
***Daha* (Burning)**			
No *Daha*			
Mild *Daha* (bearable)			
Moderate *Daha* (irregular)			
Severe *Daha* (continuous)			
Paka			
No *Paka*	0		
Mild *Paka*	1		
Moderate *Paka*	2		
Severe *Paka*	3		
***Vaivarnya* (Discolouration)**			
No *Vaivarnya*	0		
Mild	1		
Moderate	2		
Severe	3		
Number of *Pidika*			
<10 in number	0		

10-20 in number	1		
>20 in number	2		
Size of *Pidika*			
<2mm	0		
2-5mm	1		
>5mm	2		

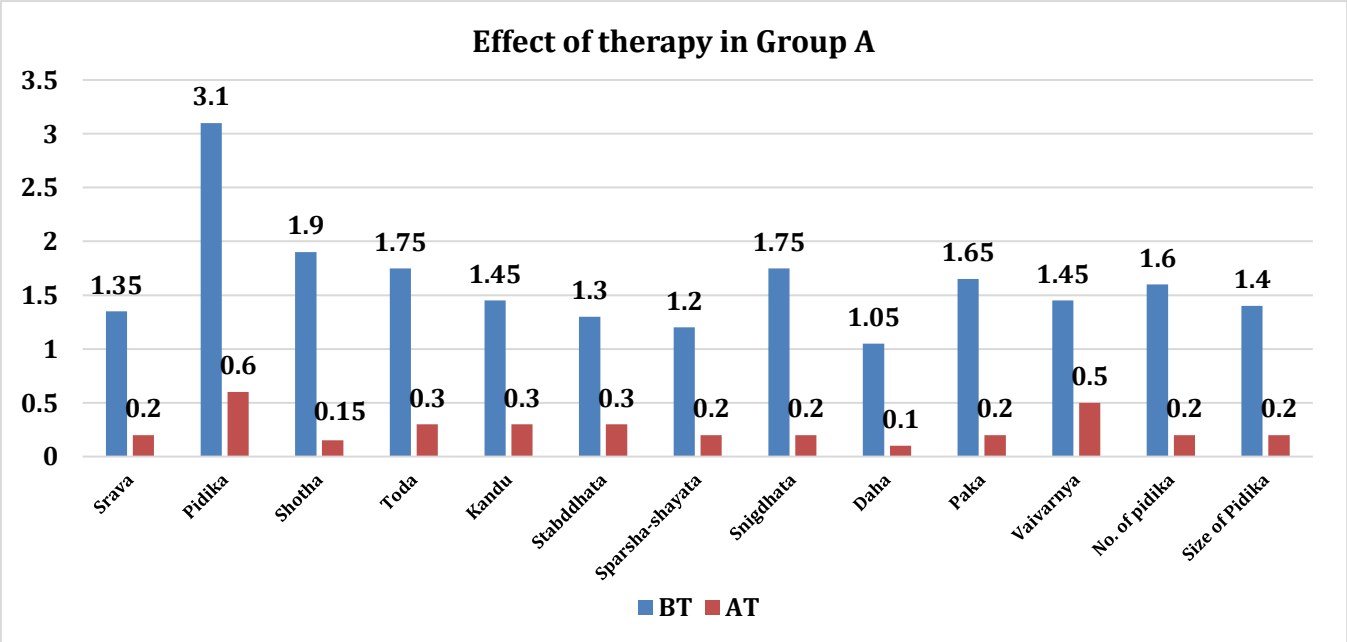
Statistical Analysis

The data were statistically analysed using appropriate tests. For parametric data, the "Student's paired t-test" was applied for within-group comparisons, while the "unpaired t-test" was used for intergroup comparisons. For non-parametric data, the "Wilcoxon Signed Rank Test" was used for within-group analysis and the "Mann Whitney U test" was used for intergroup comparison.

RESULTS

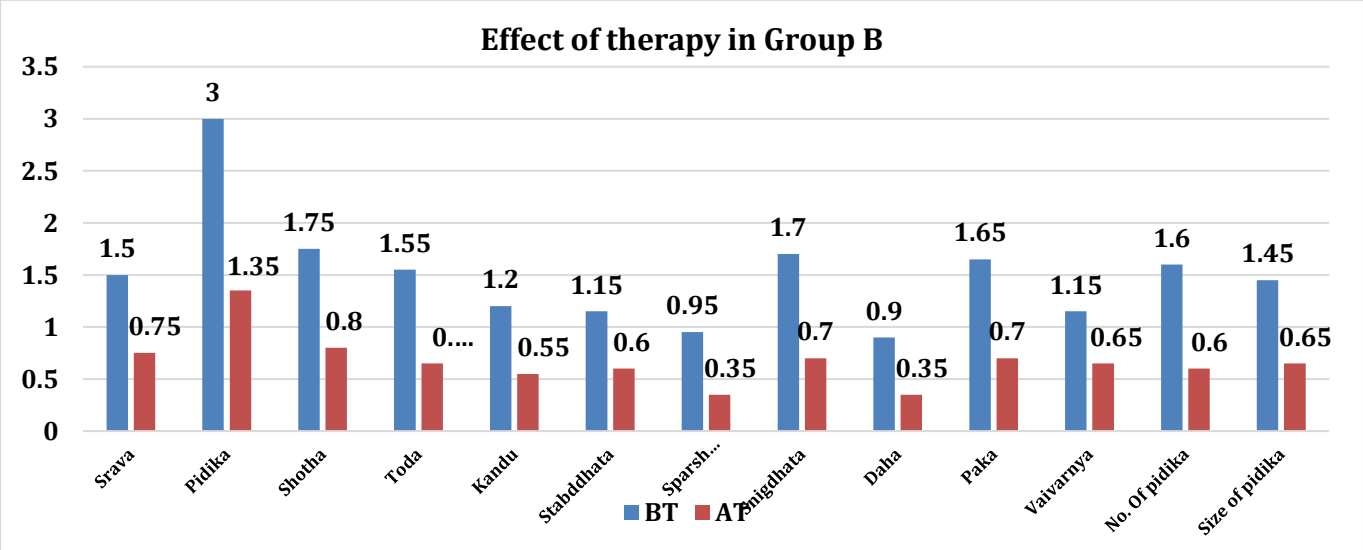
Statistical Analysis of Overall effect of *Jalaukavacharana* along with *Shalmali Kantaka Lepa* in Group -A (Wilcoxon Signed Rank Test)

Symptoms	Mean Score		$\bar{x}$	%	SD ±	SE ±	z	p	Significance
	BT	AT							
Srava	1.5	0.75	0.75	50.00	0.55	0.12	3.13	<0.05	S
Pidika	3.0	1.35	1.65	55	0.49	0.11	4.07	<0.001	H.S.
Shotha	1.75	0.80	0.95	54.3	0.69	0.15	3.58	<0.001	H.S.
Toda	1.55	0.65	0.90	58.1	0.64	0.14	3.63	<0.001	H.S.
Kandu	1.2	0.55	0.65	54.2	0.49	0.11	3.61	<0.001	H.S.
Stabddhata	1.15	0.60	0.55	47.8	0.51	0.11	3.31	<0.001	H.S.
Sparshash-ayata	0.95	0.35	0.60	63.15	0.68	0.15	2.97	<0.05	S
Snigdhata	1.7	0.7	1.00	58.82	0.72	0.16	3.54	<0.001	H.S.
Daha	0.9	0.35	0.55	61.11	0.60	0.13	3.05	<0.05	S
Paka	1.65	0.7	0.95	57.57	0.68	0.15	3.57	<0.001	H.S.
Vaivarnya	1.15	0.65	0.5	43.47	0.60	0.13	2.88	<0.05	S
No. of *Pidika*	1.6	0.6	1.00	62.50	0.64	0.14	3.70	<0.001	H.S.
Size of *Pidika*	1.45	0.65	0.8	55.17	0.52	0.11	3.77	<0.001	H.S.



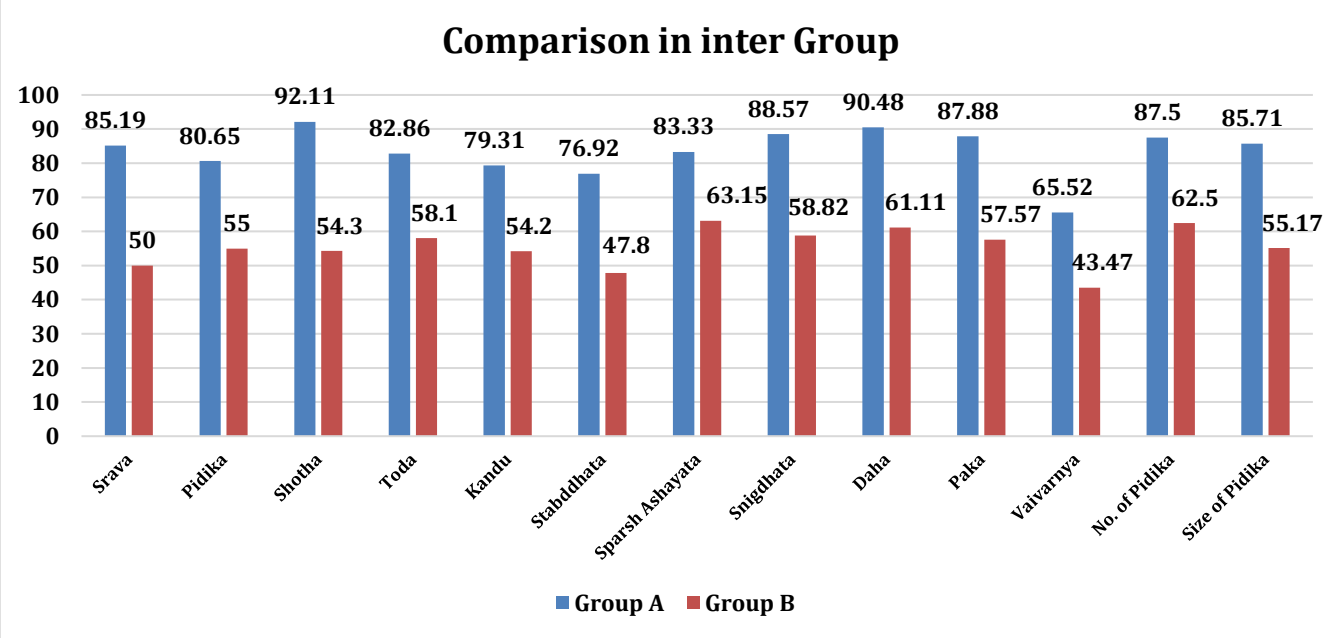
Statistical Analysis of Overall effect of *Shalmali Kantaka Lepa* in Group B (Wilcoxon Signed Rank Test)

Symptoms	Mean Score		$\bar{x}$	%	SD ±	SE ±	z	p	Significance
	BT	AT							
Srava	1.5	0.75	0.75	50.00	0.55	0.12	3.13	<0.05	S
Pidika	3.0	1.35	1.65	55	0.49	0.11	4.07	<0.001	H.S.
Shotha	1.75	0.80	0.95	54.3	0.69	0.15	3.58	<0.001	H.S.
Toda	1.55	0.65	0.90	58.1	0.64	0.14	3.63	<0.001	H.S.
Kandu	1.2	0.55	0.65	54.2	0.49	0.11	3.61	<0.001	H.S.
Stabddhata	1.15	0.60	0.55	47.8	0.51	0.11	3.31	<0.001	H.S.
Sparshash-ayata	0.95	0.35	0.60	63.15	0.68	0.15	2.97	<0.05	S
Snigdhata	1.7	0.7	1.00	58.82	0.72	0.16	3.54	<0.001	H.S.
Daha	0.9	0.35	0.55	61.11	0.60	0.13	3.05	<0.05	S
Paka	1.65	0.7	0.95	57.57	0.68	0.15	3.57	<0.001	H.S.
Vaivarnya	1.15	0.65	0.5	43.47	0.60	0.13	2.88	<0.05	S
No. of *Pidika*	1.6	0.6	1.00	62.50	0.64	0.14	3.70	<0.001	H.S.
Size of *Pidika*	1.45	0.65	0.8	55.17	0.52	0.11	3.77	<0.001	H.S.



Statistical Analysis of inter group comparison (Mann Whitney U Test)

Symptoms	% Relief in Group A	% Relief in Group B	% Diff.	z value	p value	Significance
Srava	85.19	50.00	35.19	1.66	>0.05	N.S.
Pidika	80.65	55	25.65	1.66	>0.05	N.S.
Shotha	92.11	54.3	37.81	3.22	<0.05	S
Toda	82.86	58.1	24.76	2.26	<0.05	S
Kandu	79.31	54.2	25.11	2.10	>0.05	N.S.
Stabddhata	76.92	47.8	29.12	2.242	<0.05	S
Sparsh-Ashayata	83.33	63.15	20.18	1.76	>0.05	N.S.
Snigdhata	88.57	58.82	29.75	2.10	<0.05	S
Daha	90.48	61.11	29.37	1.18	>0.05	N.S.
Paka	87.88	57.57	30.31	2.34	<0.05	S
Vaivarnya	65.52	43.47	22.05	1.93	>0.05	N.S.
No. of *Pidika*	87.5	62.50	25	1.99	>0.05	N.S.
Size of *Pidika*	85.71	55.17	30.54	2.28	>0.05	N.S.



DISCUSSION

Jalaukavacharana

Mukhadushika is a skin disorder. It has been considered as *Raktapradoshaja Vikara* in our classical text and *Jalaukavacharana* has been recommended as a therapy for *Raktapradoshaja Vikaras* and *Chirkari Vyadhis*.

If there is an excess of *Dosha, Shodhana* might be needed (Ch.Vi.3/44). Particularly when *Rakta* is vitiated, *Raktamokshana* among the *Shodhana* may provide more relief than other *Shodhana* (A.H.Su.14/5). According to Acharya Shushruta, *Raktamokshana* acts more quickly than other *Shamana* treatments and not only clears the channels in the affected area but also eliminates disease from other parts of the body. Vitiated *Rakta* is eliminated by the application of leech in the disease *Mukhadushika*. Thus, based on classical reference, it is proven that *Jalauka* gives more impact in *Raktaja Vyadhi* or *Mukhadushika. Jalauka* sucks only the impure blood with ideal example of swan by Acharya Vagbhata (A.S.Su.35/5).

When leeches applied topically, leeches suck blood from the skin's surface, maybe from capillaries or extracellular compartments. By experiment, PO_2 of leech expelled blood and PO_2 of arterial were measured. According to the remarkable findings, PO_2 of leech expelled blood comparatively less than human arterial blood. Leeches suck the blood locally when applied over the pathogenic area because the leeches suck the vitiated pathogenic substances. Hence, leeches are most effective in *Mukhadushika* to eliminate morbid, vitiated *Dosha* and *Dhatus*. But the effect of the therapy is attained not only due to expelling out but at the same time the leeches release some of the enzymes such as hirudin hyaluronidase, collagenase etc, into the superficial layer of the skin.

According to modern science, during application of leech, hirudin is secreted by the salivary gland of leeches which prevents the coagulation of blood and spread locally. The collateral circulation will improve and any residual blood will clean off from the area as the leech sucks the blood.

Hirudin also possesses mild analgesic, anaesthetic and anti-inflammatory effects. Therefore, patient can not feel pain during blood sucking by leech. It implies tissue regeneration by increasing amount of collagen and elastin fibre in the connective tissue matrix. Because it contains hyaluronic acid, it enhances the skin's ability to retain moisture. Therefore, the itchy skin may be normal because of its moisturising characteristics. *Jalaukavacharana* gives immuno-stimulation and immuno-modulating effect as well.

Lepa

According to Acharya Sushruta, application of *Lepa* in *Pratiloma Disha* (opposite direction) of the *Romakupa* (hairs) on the lesions help the active principle in *Lepa* blended with milk base to enter *Romakupa* and get absorbed through *Shiramukha* and *Swedavahi Srotasa. Romakupa* is connected to the openings of the *Dhamanis*. Therefore, the active principle of *Lepa* is absorbed and passed to the deeper layer.

The epidermis consist of two types of cells are keratinocytes and melanocytes. Depending on the concentration gradient, the outermost layers perform as a passive membrane that allows certain substances to diffuse across the skin. *Lepa* most likely works through this phenomenon. The absorbed substance is

then catabolically degraded by the viable epidermis with the help of essential enzymes, acting to stop the pathological process and relieve symptoms. As per Ayurveda, *Bhrajakagni* or *Bhrajaka Pitta* may have attributed *Pachana* with this process.

Shalmali is *Madhura* and *Kashaya Rasa Pradhana Dravya. Madhura Rasa* has property of *Kshina-kshata-sandhankara*. Thus, it promotes wound healing and reduces the burning sensation and scar *(Vranavastu). Kashaya Rasa* has property of *Shoshana* so it reduces *Shotha* and *Medogarbhatva*.

Shalmali Kantaka Lepa has *Kapha Pitta Shamaka* property so it relives *Daha* (burning) and *Kapha* dominancy symptoms such as *Kandu, Shotha* and *Medogarbhatva* etc, so eliminating the pathology and improving health.

Laghu Guna has property of *Lekhana* and *Vrana Ropana*. As a result, excess sebum that has accumulated is expelled along with dead cell debris. *Ruksha Guna* has property of *Kharata*. It is expected to relieve symptoms of *Medogarbhatva*, as *Medogarbhatva* is a form of *Kleda* that is collected inside the sac and *Kharata* reduces *Kleda*.

CONCLUSION

- The study shows that the results in the *Jalaukavacharana* along with *Lepa* group were significantly better than only *Lepa* group, highlighting the beneficial synergistic effects of *Jalaukavacharana* along with *Lepa*.
- The significant impact of *Jalaukavacharana* could be attributed to its ability to modify sebaceous gland secretion and address hormonal imbalances. Additionally, *Jalaukavacharana* helps to clear *Srotorodha* and clear deep-seated pathologies.
- It was observed during the study that proper following of the *Pathya-apathya* during and after the treatment leads to improved outcomes.
- After completing the treatment in both groups, some patients developed new lesions. This could be due to continuing the *Nidana Sevana* again.

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